it merely remains for us to add that the publishers of the series have done their utmost to secure the best possible typography compatible with cheapness, and that special point has been bestowed on obtaining accuracy and neatness in the figures. The impression is heavy, however, and does not do full justice to the typography.

T. J. McC.

THERMODYNAMIQUE ET CHIMIE. LEÇONS ÉLÉMENTAIRES A L'USAGE DES CHIMISTES. Par *P. Duhem*. Paris: Librairie Scientifique A. Hermann. 1902. Pages, ix, 496. Price, 15 francs.

Professor Duhem has added another work to his rapidly increasing list of excellent publications on physical chemistry, and prefaces the book, which will probably be more widely read than any that he has hitherto written, with the following remarks:

The development that thermodynamics has undergone in the last fifty years has attracted the attention of men who have devoted to it the most varied kinds of studies. Opinions not long since accepted without opposition regarding the aim and scope of physical theories, have been completely overthrown. Mechanics has ceased to be the ultimate explanation of the inorganic world; it is now nothing more than a chapter, though the simplest and most perfect, of a general body of knowledge that controls all the transformations of inanimate matter; and the question is not now that of discovering the inward nature and essence of these transformations, but solely to co-ordinate their laws by the help of a small number of fundamental postulates. And philosophy follows with anxious heart the phases of this evolution, which is one of the most considerable that cosmology has ever undergone.

At the beginning of the nineteenth century, mathematical physics furnished a multitude of fascinating and fecund problems to analysts; and the efforts which were put forth to resolve these problems have given rise to more than one branch of modern analysis; but the fear was rife that the veins worked by so many transcendent genuises had been exhausted. Now, the new doctrine generalises to the uttermost limits the data of the problems which were formerly attacked; it has given them an entirely new setting, and in this way has opened vast vistas to the researches of the mathematician.

The different branches of physics stand apparently isolated; each of them evokes its own principles, and proceeds by its own special methods. To-day, however, the physicist knows that his work is not concerned with a loosely-connected bundle of branches which are independent of one another, but with a tree of which the different boughs are the offshoots of the same trunk; all the parts of science that he cultivates appear to him rigorously connected, like the members of an organised body.

In a word, the laws formulated by thermodynamics introduce rational order into the most confused chapters of chemistry. A small number of simple and lucid

rules reduce to order what was once a chaos; the circumstances in which the various reactions are produced, the conditions which check them and assure chemical equilibrium, are determined by these theorems with geometrical precision.

Thus, the philosopher, the mathematician, the physicist, and the chemist, are equally eager to become acquainted with the science of thermodynamics in its modern form, and to obtain a clear grasp of its principles, methods, and results. But each of them is interested in a different aspect of the subject and each requires a special treatise adapted to his purpose. The present work of M. Duhem is intended for the chemist; but we hope that the one for the philosopher may also soon be forthcoming from his pen.

The first five chapters of the present book are devoted to an examination of the foundations on which chemical statics and dynamics rest, and to the exposition, devoid of complicated algebraical analysis, of the elementary ideas of thermodynamics. Considerable space is devoted to recent applications of a thermodynamics to chemistry, special attention being given to "that admirable law of phases, an algebraic theorem born of the genius of J. Willard Gibbs and rendered one of the most valuable controlling principles of modern chemistry by the masters of the Dutch school, Van der Waals, Bakhuis Roozboom, and Van't Hoff." American readers not familiar with the history of this science will be glad to learn that Professor Gibbs is a countryman of ours.

The remainder of M. Duhem's work is devoted to purely technical questions of chemistry, and need not claim our attention here. *μ.*

L'ANNÉE PSYCHOLOGIQUE. Publiée par *Alfred Binet*. Avec la collaboration de MM. H. Beaunis and Th. Ribot. Secrétaire de la Rédaction: Victor Henri. Septième Année. Paris: Librairie C. Reinwald. Schleicher Frères, Éditeurs. 1901. Pages, 854. Price, 18 francs.

The *Année Psychologique* for the work of the year 1900 contains twenty-four original memoirs: The first is a long biological monograph on the "Habits of *Bembex* (the digger-wasp)." The four following monographs are by Ch. Féré, on the "Variations of Excitability and Fatigue," "The Influence of Agreeable and Disagreeable Excitations on work," "The Alternative Work of the Two Hands," and "The Comparative Excitability of the Two Cerebral Hemispheres of Man." M. Binet contributes nine papers,—two on "Esthesiometry," one on the "Technique of the Measurement of the Living Head," four kindred papers on "Cephalometry," one on "Observing and Imaginative Types," and lastly one on "A New Apparatus for Measuring Suggestibility." There are three memoirs by M. Simon on "Cephalometry" and two on "Backward Children;" the remaining papers are: (1) "On the Participation of Nervous Centers in the Phenomena of Muscular Fatigue," by J. Jotyko; (2) "Muscular Effort and the Fatigue of the Nervous Centers," by MM. Aars and Larguier des Bancels; (3) "Intellectual Work in its Relationship with Muscular Force Measured on the Dynamometer," by J. Clavière;